

Status of E-906/SeaQuest

– an unpolarized fixed-target Drell-Yan experiment



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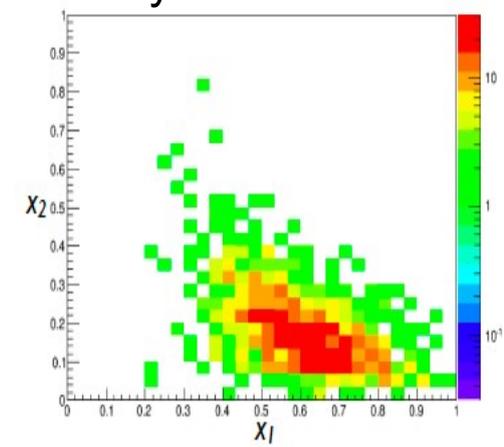
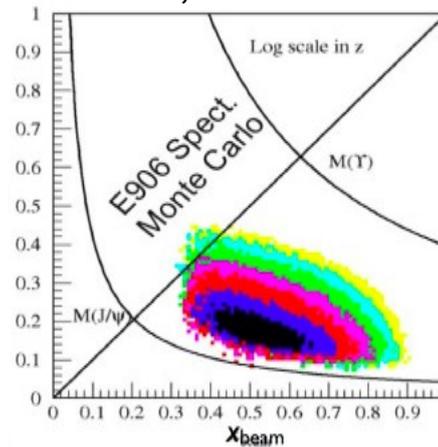
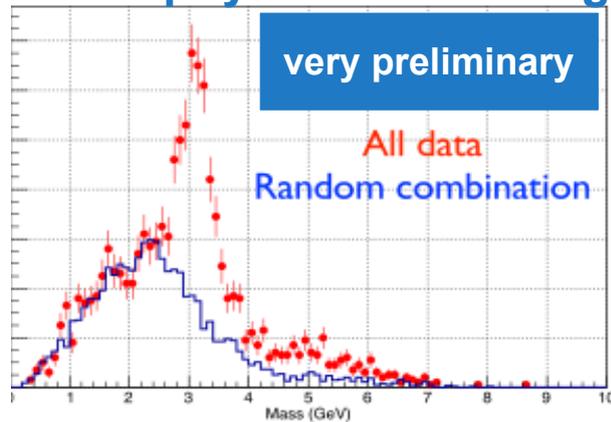
Reached a milestone

- during shutdown on February 18th and 19th:

- filled liquid hydrogen target (LH2)
- filled liquid deuterium target (LD2)
- target table rotating between:

LH2 flask - empty flask – LD2 flask – no target – iron target

- started **physics data taking** after shutdown, first run on February 20th



- at current running conditions ($2e12$ ppp):

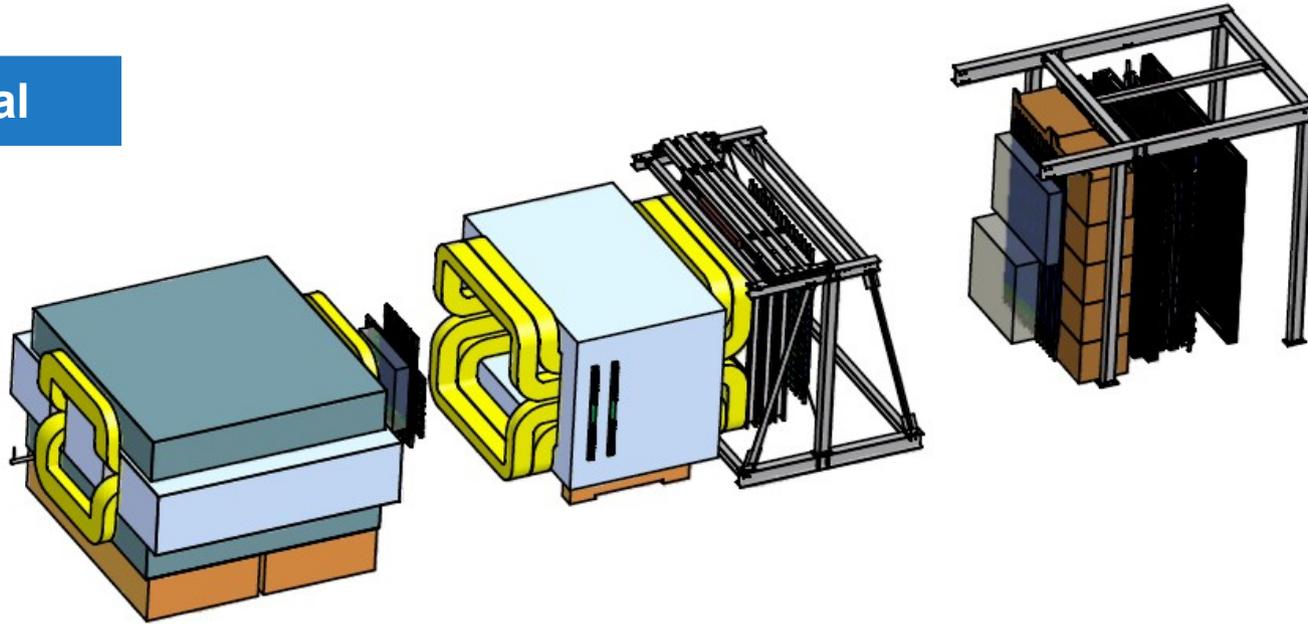
first physics results expected after 3 months of data taking

Beam Status

- large variation in instantaneous beam intensity
- SeaQuest beam-line Cerenkov counter:
 - **beam diagnostics**: measurement of RF-bucket by RF-bucket intensity
 - **trigger inhibit**: veto on single RF buckets as a function of intensity
 - currently: inhibiting about 50% of integrated luminosity
- continual high effort by AD to solve **known problems in spill structure**:
 - slow component of 360Hz and *fast* component in spill structure
 - improvement of 53MHz duty factor → reduce beam inhibits
- **in the next months**: data taking at $2e12$
- **long term goal**: data taking at $1e13$

Spectrometer Status and Plans

Operational



Target

target positions calibrated, liquid targets filled, liquid

Magnets

FMAG (2000A) and KMAG (1600A) operational

Hodoscopes

calibrated, timed in precisely, high efficiency, well tested during trigger studies

Drift Chambers

calibrated, high efficiency, operated at nominal voltages, operate stable at $2e12$ ppp

DAQ

continuous data taking, reducing DAQ dead time

Trigger status

- road pulser tests of **FPGA trigger firmware**:
 - 100.0% efficiency and 100.0% purity
- **trigger road selection** optimized in full Geant MC simulations for:
 - good DAQ livetime
 - good acceptance rate of Drell-Yan events
 - removal of *hot* roads based on data and MC simulations
- **extensive trigger studies**:
 - understood limitations of NIM diagnostics trigger at high rate
 - FPGA trigger efficiency and purity high, but not 100%
 - ongoing work to optimize efficiency and purity
 - ongoing work to optimize trigger acceptance